UNITED NATIONS
ECONOMIC AND SOCIAL COUNCIL

Distr.
LIMITED

E/ECWA/NR/CONF.2/CP.3
10 August 1978

ENGLISH

Original: ARABIC

ECONOMIC COMMISSION FOR WESTERN ASIA

Second Regional Preparatory Meeting
for the United Nations Conference
on Science and Technology for Development
12-14 September 1978
Amman, Jordan

THE PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN

Draft National Paper

on

The Application of Science and Technology

to Development

78-2026

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I.A. Introduction

Science and Technology have played an important role in stimulating the evolution of human society in the various stages of its historical development. In the capitalist stage of development the role of science and technology in the life of man took on an increased dimension. At that time too, the process began whereby the capitalist states of Europe undertook to impose their imperial domination over the peoples of the world, depriving them of their national sovereignty and harnessing them economically to the international capitalist order. This process created an international division of labour whereby the colonized and semi-colonized countries served as a cheap source of raw agricultural and mineral materials and a market for the investments of the capitalist monopolies and the industrial products of the capitalist nations. This situation no doubt braked the development of science and technology in the colonized and semi-colonized countries. Among the consequences of the domination of these countries, among which were some of our Arab states, by the capitalist states of Europe was the decline of learning, the decline of handicrafts in the face of competition from industrial imports, and the decline of Arab technology, which flourished under Islamic Arab civilization and which succeeded in surviving the Ottoman rule of the Arab world.

The development of science and technology cannot be isolated from the requirements of the manufacturing process. In the colonized and semi-colonized countries, science and technology were geared essentially to the needs of capitalist industrial development, which took place, in the first instance, in the capitalist states themselves. Thus the need for developing science and technology and the scientific and technological know-how necessary for increasing capitalist industrial production emerged and flourished in the Mother countries of the European capitalist states, where manufacturing was concentrated. Moreover, the capitalist states of Europe made no effort to develop scientific and technological insitutions in the colonized and semi-colonized countries. Indeed,

they neglected them and even actively discouraged creative techno-scientific activity in the countries they colonized. The transfer of scientific and technological knowledge from the capitalist and imperialist countries was limited to the training of small numbers of scientific and technical personnel and the importation of the variety of industrial products manufactured in the imperial countries. The purpose, in the last analysis, was to tie the production process of the colonized and semi-colonized countries organically to the capitalist production process of the imperial country, thus bolstering its scientific and cultural domination over them.

I.B. Historical Background:

Britain's imperial domination of Southern Yemen, which is now known as the People's Democratic Republic of Yemen, lasted 129 years, during which the country was transformed into a market for industrial goods and foreign capital and into a huge British military base. After the Second World War, and especially in the fifties and the early sixties Aden and some of the districts in its vicinity witnessed a measure of industrial and agricultural development geared to the needs of the British military base in accordance with the politico-military strategy of imperial Britain at that time. For example, oil refineries were constructed in Aden colony, Aden port was transformed into a major ship fueling station and a commercial centre for the servicing of the transit trade towards the neighbouring countries, and new agricultural crops - such as cotton - were introduced. Accompanying this limited development was the establishment of a number of educational institutions in Aden and in some of the other towns. The purpose, again, was to train the clerks and the other occupations needed by the military base, foreign banks, trading companies and administrative services established by the British administration. In addition, a small number of the sons of the social classes allied with the British was sent to British universities in the effort to bolster British political, economic and cultural domination of the region. The consequence was a limited transfer of scientific and technological knowledge to the city of Aden, where the trading companies and the military installations were concentrated. The growing importance of the transit trade led the British administration to

issue a patent and trademark law and to pass other legislation regulating intellectual and industrial property in the region so as to safeguard the patent rights of the British companies that owned them and to protect British trading interests in this important market of the British Empire. from the competition of companies belonging to the other imperial countries: The law prohibited the registration of patents and trademarks unless they were first registered in Britain.

I.C. Science and Technology Before Independence:

The country was denied of any true scientific and technological advancement during the period of British imperialist rule. As evidence it suffices to point to the absence of higher education and universities during that period, as also the absence of vocational and technical training centres and scientific research institutes. The economic system rested basically on the services sector, especially in Aden, while socio-economic conditions in the other regions remained very backward, a backwardness marked by the absence of the basic essentials of human life: Most of the regions lacked paved roads, adequate housing, electricity, drinking water and health services for the over 85% of the population who lived on agriculture, fishing and herding. British policy contributed to the division of the region into several separate Sultanates and Sheikhdoms which continued to utilize traditional and primitive production methods in agriculture and fishing, which seemed sufficient for meeting the limited needs of the closed local market. In the fifties and sixties, however, some development took place in the use of modern machinery in agriculture and fishing in the regions close to Aden, whose consumption needs were growing.

II. A. Evolution of Science and Technology Since Independence:

When the People's Democratic Republic of Yemen seized its national independence from British imperial domination in November 1967, it was confronted with the problems of scientific and technological underdevelopment. The more important of these problems were the following:

1. Total absence of an infrastructure for the development of science and technology.
2. Poverty of scientific and technological knowledge in the country.
3. Absence of institutions of higher education and vocational and technical training centres which relate the advancement of science and technology to development.
4. Absence of scientific research institutes.
5. Absence of economic planning.
6. Lack of standards for selecting the technology that is appropriate to economic development.
7. Serious deficiency in technical and administrative expertise.
8. Lack of the financial resources needed for investment and for the development of science and technology.

It was natural that in the past ten years Democratic Yemen proceed on the path of economic independence and social advancement towards the achievement of the objectives of the first stage of its national democratic revolution. It took numerous measures to liberate its national economy from the domination of foreign companies, to establish and develop the public sector and to adopt and implement plans for social and economic development. Since 1971 Democratic Yemen has been implementing development projects scheduled in the Three-Year and Five-Year Plans, in the areas of agriculture, industry, communications and social services, with the aim of developing the productive forces in Yemeni society, diffusing scientific knowledge, expanding the educational system and relating the country's educational and research institutions to its socio-economic development plans. Popular organizations such as the General Federation of Trade Unions, the Union of Agricultural Workers, the Youth Union and the Popular Defence Committees were given a participatory role in the implementation and in the supervision of the implementation of these development projects.

The efforts of Democratic Yemen in the area of the application of science and technology to development have focused on the following:

1. The development of the nation's scientific-technological power through the development of the educational system along modern lines and the establishment of institutions of technical and higher education.

2. Obtaining the scientific and technological knowledge needed for the execution of development projects, through economic and technical co-operation with friendly states and sister countries, and especially with the Socialist countries.

3. The establishment of scientific research centres geared to the needs of development, the encouragement of researchers and outstanding scientists, the expansion and generalization of learning and the diffusion of scientific thought among the masses.

4. The establishment of vocational and technical training centres at the intermediate level of the schooling cycle.

5. Promotion of women's education and women's liberation and the passage of the legislation necessary thereto; the provision of opportunities for women to work in non-traditional technical areas in agriculture, industry and construction.

6. The launching of a permanent organized campaign for the eradication of illiteracy and for adult education in all government services, institutions and co-operatives and in the residential quarters.

7. Passing legislation regulating the import of industrial materials, machinery and equipment.

XI. B. Evolution of Higher Education:

Democratic Yemen has given top priority to the advancement of higher education establishing institutions of higher learning one after the other, beginning with the College of Education in Aden in 1970 to the passage of the law establishing the University of Aden in September 1975. The aim was to provide highly qualified cadres for the more effective implementation and administration of the projects of the development plans. The University at present consists of the following teaching units:

1. College of Education / Aden

2. Teacher Training School / Al-Mukalla

3. Nasser College of Agricultural Sciences

4. College of Economics and Administration

5. Higher Technical Institute

6. College of Medecine

The attached tables indicate the size of the faculty and the student body (males and females) of the University for 1976/77.

The faculty is recruited from friendly countries through scientific and cultural co-operation agreements or direct contracts with foreign lecturers. The University also attempts to recruit as instructors its own outstanding graduates and outstanding Yemeni graduates of universities abroad. The University also has a plan for the continuing education of its local cadres, encouraging its teaching staff to obtain Master's and Doctoral degrees in order to fill its urgent needs and to arrive one day at complete self-sufficiency.

II. C. Technical and Vocational Education:

Involvement in the details of development programmes in the different sectors led to the discovery of shortcomings in the vocational and technical labour force needed for their implementation. This stimulated several ministries and public services into the establishment of technical training centres so as to diminish some areas of deficiency in the technical labour force needed.

The growing concern with vocational and technical education at the various levels covered the type of studies, their duration and the number of people benefiting therefrom. This concern was crowned with the formation of a Council for Vocational and Technical Education from among the ministries involved. Its purpose is to prepare reports on vocational and technical education, to adopt general policy for gearing vocational education plans to the needs of development programmes, to plan for the training of the

manpower needed most in the labour market and to set the priorities among the occupations for which training is most needed.

The accompanying tables indicate the number of such institutions established up to 1977.

II. D. Education and the Environment:

Changes began to be made in the educational system in 1976 to bring it into line with the needs of socio-economic development programmes. The division of the school years into elementary, intermediate and secondary cycles was changed in favour of a single primary cycle of eight school years with obligatory attendance. School curricula were changed radically so as to relate them to the environment where the school was located: Industrial polytechnical subjects were introduced at city schools and agricultural polytechnical subjects in rural schools. The basic problem still facing this experiment is the paucity of qualified instructors in the new subjects.

The main purpose of these curricular changes is to transform the mentality of the Yemeni student so as to give vocational and technological careers greater appeal among the new generations and to enhance the prestige of technical skills.

II. E. Scientific Research Organizations:

In 1955 an Agricultural Research Centre was established. This Centre concerned itself solely with the study of the introduction of the long fibre cotton crop into the region, as per the British policy of 1948 which focused on the planting of cotton in the valleys in the vicinity of Aden. This remained the only scientific research centre in the country until the achievement of independence in 1967.

After independence, interest in the creation of basic and applied research centres grew, limited only by available resources. By 1978 the following centres were established:

Sector	No. of Centres
Agriculture	3
Educational research	1
Cultural research	1
Marine Science Research Centre	1

Construction of the Marine Research Centre began in 1978 and it is expected to become operational in 1980.

These centres are still in their early stage of operation and share in common a lack of the necessary material and technical resources. They need a greater degree of co-ordination among themselves, and they need to make wider use of the research expertise available at the different colleges of the University. They could also benefit from a greater degree of co-ordination with scientific research facilities in the Arab World and in the other countries of the world, exchanging research findings with one another.

III. The Transfer and Application of Foreign Technology to Development:

The investments scheduled in the Three-Year and the Five-Year Plans for the years 1973-1978 and the organizational and legislative measures that accompanied them aimed at changing the existing economic structure and developing the productive sectors in agriculture, fishing and industry as well as the improvement and construction of the economic infrastructure in terms of roads, ports, electrical power and the amelioration of social services. These investments brought with them the transfer of foreign technology and expertise and their application to the different projects. This was accompanied by the implementation of technical training programmes and the dispatch of numerous study missions abroad so as to permit local staff to obtain scientific and technological knowledge and to become self-sufficient in the use and maintenance of machinery. The transfer of technology to Democratic Yemen had a direct impact on its economic development in the form of the investments that accompanied economic and technical co-operation with the Socialist and the Arab countries, and with Arab and international organizations and funds. This co-operation included the following:

1. The transfer of technical equipment and expertise, the formation of local technical cadres within the country and abroad; the formation of maintenance crews and machine parts crews; the establishment of food processing industries related to domestic agricultural and fish production and the accompanying electrification of the rural areas in the vicinity.

2. Encouragement and modernization of traditional industries and handicrafts.

3. Mechanization of agriculture and vertical/horizontal expansion of the agricultural sector.

4. Improvement of the traditional fishing fleet, construction of a modern fishing fleet and fishery complexes that include freezer and chiller storage units, fish processing and canning factories, refrigerated distribution vehicles and a network for marketing fish products in the districts of the interior.

5. Establishment of food processing and other light industries that depend on domestic raw materials in whole or in part.

5. Expansion of animal resources: cattle and sheep raising, and the poultry industry.

7. Construction of roads connecting the main cities, the districts of the interior and the coastal districts; and expansion of the market for agricultural and fish products.

8. Deepening Aden Port, improvement of services therein, modernization of cargo and distribution machinery so as to improve handling operations and cargo traffic; construction of a free zone in the port to expand the transit trade; expansion of ship maintenance services; construction of the port of Al-Mukalla and other lesser ports so as to promote the growing exploitation of fish resources.

9. Construction and expansion of airports at the provincial (Muhafazah) centres and in the districts of the interior.

10. Construction of schools, hospitals, health centres and mother-and-child care centres in the different districts; provision of social services, improvement of the living conditions of the nomadic Bedouins and the creation of schools for their children.

IV. Basic Problems of the Transfer and Application of Foreign Technology to the Different Sectors:

The lack of financial resources, the deficiency in the number of technical cadres with higher scientific qualifications, the absence of a central organization for the design of policies for the transfer and application of technology, the lag in the absorbtion of advances made in science and technology the world over - all this has narrowed the field of technological choice and has left the question of selection largely in the hands of foreigners.

Despite the economic progress realized through the investments of the development programmes for the years 1973 to 1978, the transfer and application of foreign technology - limited as it was - brought with it a number of basic problems, which are outlined here below:

IV. A. The Problem of Intellectual Property:

The most common problems in this area arise from the agreements with the capitalist companies that provide machinery and equipment to specific industrial establishments, giving them the right to use their trademark privileges, on condition that goods produced domestically and carrying these trademarks are not exported; and from licensing agreements granting certain foreign companies concessions to exploit the natural resources of the country.

IV. B. Technical Problems:

These problems arise when there is a failure to study seriously the compatibility of certain types of machinery and equipment with the climate of the area; when there is a lack of sequential co-ordination of the productive capacity of machinery during industrial operations and lack of co-ordination in the provision of raw materials in quantities sufficient to keep all machinery operating at maximum capacity; and when spare parts are not provided with the speed sufficient to assure the continuity of operations at industrial establishments.

IV. C. Education and Training:

The problem in providing local citizens with the appropriate education in the management, operation and maintenance of industries consists of the absence of locals who have the minimum qualifications needed for benefiting from the foreign experts working in these establishments and the inability of some of these experts to pass on their knowledge in science and technology to their trainees. This shortcoming is due to numerous obstacles, among which is the language barrier.

IV. B. Organization and Administration:

The ability to provide local expertise for work management and organization in the modern industrial establishments is limited. The result of this penury is the absence of sound supervision that promotes the efficient use of machinery and equipment.

IV. E. Productivity:

The increase in the productivity of workers in industrial and agricultural enterprises is related to the technical expertise and skills they possess, their ability to relate to the machinery and their provision with adequate nutrition. It is also related to the adoption of appropriate policies linking wages to productivity and making optimum use of working hours.

The problems cited above confronting the transfer and application of foreign technology apply to all economic sectors and are a natural consequence of the economic and scientific backwardness which the country experienced in the shadow of British imperialist rule.

Knowledge of the problems confronting the transfer and application of foreign technology in the different sectors of the economy in close detail permits us to identify the solutions required and to select the subjects that should be focused upon and developed in the future.

(1) The agricultural sector:

The introduction of modern technology into the agricultural and the fishing sectors was accompanied by the inability to exploit optimally the

productive capacity of industrial establishments, farm machinery and the modern fishing fleet. This was due to the lack of the administrative, technical and organizational skills needed for harnessing the maximum capacity of such installations and machinery and for maintaining them and prolonging their service life. It was also due to the inability to make full use of the skills of the foreign technicians working for short periods in these establishments and the inability to replace them with local technicians.

(2) The industrial sector:

Interest in the traditional crafts waned in the shadow of British imperialist rule when they were neglected and had to compete with manufactured goods. These crafts included hand weaving, ironsmithing, the crafting of swords and daggers, carpentry, the construction of wooden ships, the manufacture of brick stone and lime, pottery, gold and silver smithing, tanning of leather, shoemaking, ceramics, and sesame and cottonseed oil pressing. The modern industrial establishments too faced the problems cited above, and the remedy to these problems no doubt involves the following:

(a) Modification of the laws relating to patents and copyrights, with the assistance of the World Intellectual Property Organization and other related Arab and international bodies.

(b) Support of the technical services concerned with up-grading the production and employment capabilities of industrial establishments, utilizing the assistance of expertise of friendly countries and international organizations.

(c) Support for the body of technicians specialized in the traditional industries and handicrafts; improving these crafts and expanding production to meet the needs of the domestic market.

(d) Establishment of small industries and power generating stations in the appropriate locations, keeping transportation and communications difficulties in mind.

(e) Attention should be paid to research outside Democratic Yemen in the area of the application of solar energy and other non-traditional sources of energy to the generation and utilization of power.

(f) Adoption of appropriate accounting, warehousing, management, and maintenance systems so as to raise productivity and to link wages to productivity.

(g) Study of the use of domestic materials in the construction and other industries, where this would lower costs, and where production is for the needs of the domestic market, so as to avoid the import of materials from abroad.

3. The area of social services:

The Government of Democratic Yemen gives great importance to the obligation of providing for the basic human needs of the Yemeni citizen and the improvement of his economic status and his standard of living; as also up-grading his productive capabilities and his involvement in legislation, planning and economic construction. Accordingly, and within the limits imposed by the material resources available in the period of the two socio-economic plans, the Government implemented a number of projects in the areas of health, education and housing; it expanded agricultural and fish production, making it available to the distant regions; it supported the prices of imported foodstuffs so as to make them available to the people at reasonable prices; it provided nutritious meals at kindergartens, schools and other institutions. For the future, it is imperative that the appropriate technology be applied to the area of social services and to the provision of the essentials of human life, and that emphasis be placed on the establishment of food research centres, on medical research into the deseases of the region and their treatment, and on local plants and their possible medical and other applications.

In the area of housing, the present shortages in imported building materials - as in cement, iron bars, pipes and wood - should be resolved through the design of low cost popular housing and building costs should be lowered by amending the specifications presently applied for walls,

roofs and (large) windows. The possibility of producing iron bars from scrap metal deserves examination as also the replacement of cement with lime reinforced with some other binding material, as was done in the older buildings.

V. The New International Economic Order:

National liberation movements developed in the colonized and semi-colonized countries during the Second World War and after. These movements resulted in the disruption and dismemberment of the imperialist system, as during the fifties and sixties one country after the other wrested its national independence and sovereignty. These countries, which included our own, came to form in the international community what has been called the developing countries group. These countries have struggled and continue to struggle within the United Nations and outside it for their economic independence. They have expended great effort with the co-operation and assistance of the Socialist countries, to liberate their national economies from the domination of foreign capitalist monopolies and to construct advanced national industries in the context of socio-economic development plans. They were challenged to seek the scientific and technological knowledge necessary for the implementation of their development plans. As part of these efforts, the first United Nations conference on the application of science and technology to development benefiting the developing countries was held in 1963.

It is now fifteen years since that conference took place. Throughout that period the developing countries made every effort inside and outside the United Nations to gain control of their own natural economic resources and to obtain the techno-scientific knowledge needed for constructing their national industries and for liberating themselves from foreign capitalist monopolies.

These countries relied upon their own resources and upon the support and assistance proferred by Socialist countries in the advancement and development of their own national techno-scientific capabilities.

Despite all the efforts expended by the developing countries in their endeavour to obtain techno-scientific knowledge from the advanced imperialist countries, and despite the growing importance given by the United Nations to this subject, it can be said that the results of all these efforts were not encouraging. In fact, these efforts were met with the strong opposition of the imperialist countries who spared no effort throughout this period to obstruct the liberation of the economies of the developing countries.

The industrially advanced capitalist (imperialist) countries and the multi-national corporations exploited the urgent and growing need of the developing countries for techno-scientific knowledge in order to reap exorbitant profits and in order to tie the national industries of the developing countries to the imperialist economic system. In addition to the enormous profits exacted from the sale of technology to the developing countries and the one-sided conditions and restrictions they imposed thereon, the imperialist monopolies always attempted to connect the transfer of technology to what they called the "proper climate" for foreign investments in the developing countries, which, in reality, meant the exploitation of science and technology and techno-scientific knowledge for the achievement of their politico-economic objective of keeping the developing countries within the orbit of the international capitalist economic system and the imperialist division of labour.

Despite the neo-imperialist policy followed by the industrially advanced imperialist powers, some developing countries succeeded in liberating their national economies and in gaining control over their natural resources. For example, the oil-producing developing countries, thanks to their solidarity in the framework of OPEC, succeeded gradually in gaining control over their number one natural resource and the principal source of energy in the world today.

In the nineteen-seventies the developing countries, thanks to their internal solidarity and their solidarity with the Socialist countries, have been able to play an ever-growing role in international politics and economics. Thanks to the efforts deployed by the heads of state of the

non-alligned countries at their various conferences, and by the United Nations and its specialized agencies, the question of the transformation of world economic relations, including the transformation of commercial and financial relations, and the international arrangements for the transfer of techno-scientific knowledge to underdeveloped countries, has become the subject of the current international debate on the development of what is known as the New International Economic Order.

Thus is was natural that the developing countries and the United Nations and its agencies direct ever greater attention to the subject of the application of technology to development.

In the seventies, the developing countries redoubled their efforts at advancing their national techno-scientific capabilities, relying on their own resources and on the aid and support provided by the Socialist countries and the specialized agencies of the United Nations. They made every effort to promote the adoption of a body of international standards of conduct in the field of the transfer of technology and the revision of agreements for the protection of industrial patents to make them more compatible with the interests of the developing countries.

The ownership of techno-scientific knowledge by the international capitalist monopolies constitutes the bigest obstacle to the free transfer of technology to the developing countries. Accordingly, the coming United Nations Conference on Science and Technology for Development should pay special attention to the adoption of practical programmes for facilitating the transfer of techno-scientific knowledge to the underdeveloped countries on favourable terms, and it should assist these countries in developing their national techno-scientific capabilities as the basis for the construction of national industries, the achievement of economic independence and progress in social development.

VI. International Economic Relations of Democratic Yemen:

Considering the lack of financial resources, the absence of the basic infrastructure needed for the development of science and technology, and the penury of local techno-scientific expertise, Democratic Yemen's

economic relations with the outside world played a fundamental and instrumental role in the application of science and technology to development.

Proceeding from its political and revolutionary principles, Democratic Yemen looks upon science and technology as an instrument for improving the economic well-being and living conditions of the Yemeni people at home by helping them to gain control over their natural resources, to produce their own material goods and to satisfy their essential human needs. Science and technology must never be used as an instrument for the exploitation and oppression of man, whether in Yemen or elsewhere.

Economic and technical co-operation with the Socialist countries increased during the implementation of the development programmes of the two socio-economic plans of the years 1973/70. This assistance is still instrumental and effective in the transfer and application of technology for economic development, especially since it is accompanied by the technical expertise of these countries, the training of Yemenis on the job and at local training centres, and the provision of scholarships for the technical, university and higher education that permits the Yemeni to obtain needed techno-scientific knowledge. This assistance also involves direct participation in the construction of the basic infrastructure for the local development of science and technology, the establishment and support of institutions of higher education, and the formation of spare-parts and maintenance crews for machinery and modern equipment. This technical and economic co-operation is not accompanied by any economic or political pressure in return for the sale and transfer of technology.

Economic and technical co-operation with the Arab countries and with Arab funds and organizations also helped Democratic Yemen to implement development projects in the areas of social services, road construction, agriculture and fisheries.

The United Nations, through its Development Programme, the regular programmes of its specialized agencies and the International Development Association, has contributed valuable assistance to the implementation of the socio-economic development plans in the form of technical aid,

studies and on the job training scholarships for locals, food grants, and in co-operation with Arab finance organizations, capital for investment in development projects.

VII. Selection of Projects in Five Subject Areas:

From the preceding it would appear that the areas of basic concern to Democratic Yemen at this time in relation to the application of science and technology to development are a function of the availability of material and technical resources, the development of the nation's domestic techno-scientific capabilities and the utilization of the coming socio-economic development plan for the following:

1. Increased food production in agriculture and fishing.
2. Industrialization and improved productive skills at industrial plants and counseling in their applications.
3. Development of the transport and communications sector.
4. Development of human settlements and provision of social, health, housing and ecological services.
5. Development of non-traditional sources of energy and research in the utilization of solar, subterranean and other sources of energy.

VIII. Conclusions and Recommendations:

The People's Democratic Republic of Yemen has expended serious efforts in the field of socio-economic development, relying on its own resources and on the grants and the assistance provided by the Socialist countries, Arab states and funds and the United Nations and its specialized agencies. All its socio-economic policies and legislation and the structural changes that it has effected and that are in process are aimed at raising the economic well-being and the general living standards of the Yemeni individual.

In response to the problems which confront Democratic Yemen in the area of the application of science and technology to development, there is a need for great effort both at the level of the country's planning and

administrative machinery and its educational institutions and at the level of popular organizations and citizen participation in the implementation of official policies and directions introducing therein a creative and innovative spirit. These efforts must be pursued so that gradually the mentality of the common man is transformed, scientific knowledge is generalized, science and technology are applied to everyday life and the techno-scientific potential of the country is actualized. To this effect, the following recommendations may be worth consideration:

VIII. A. At the domestic level:

1. Material and technical support and development of Aden University so that it can perform what is required of it in terms of techno-scientific research on behalf of the developmental needs of the different economic sectors; co-ordination between scientific research and institutions of higher and vocational education; creation of a special mechanism for monitoring the issues of the utilization of science and technology for development and the problems of the transfer and development of technology.

2. Support of the technical machinery concerned with monitoring the efforts to bring productivity and employment to full capacity in the different services and establishments, and the machinery concerned with the utilization of domestic resources for the provision of basic human needs.

3. Increasing the efforts to widen the base of vocational, technical and polytechnical education, to formulate appropriate policies on manpower and its distribution, and to make wages a function of productivity.

4. Increasing the production of foodstuffs to meet domestic needs and to increase exports; improving health services, providing appropriate housing and drinking water, planning human settlements and protecting the environment.

5. Using modern technology in the exploitation of available energy resources (such as solar, subterranean and wind energy); co-ordinating efforts with scientific research in the developing countries that have already taken steps in this direction.

6. Modification of patent and intellectual property laws; adherence to the World Intellectual Property Organization; enriching and diffusing the national culture and utilizing the benefits of the country's scientific, intellectual and cultural heritage.

VIII. B. At the international level:

The second United Nations conference on the application of science and technology should adopt practical programmes for implementing its resolutions on standards of conduct for the sale of techno-scientific knowledge and the transfer and development of technology in the developing countries; it should support scientific centres therein and establish funds whereby the imperialist industrial countries support the exports of the developing countries; it should enable the developing countries to strengthen co-operation among themselves to the point where their solidarity can impose favourable prices for their goods; it should assist them in utilizing their natural resources; it should call upon them to disarm and cut military expenditures, using these savings to develop the techno-scientific knowledge of their citizens. The United Nations and its specialized agencies should be encouraged to simplify their bureaucratic procedures in the study, assessment and implementation of the projects aimed at assisting the developing countries; to select the right experts who have worked previously in similar circumstances; to help the developing countries in selecting the expertise appropriate to their needs by publishing periodic summaries of available information on the activities of experts in the different countries and their contributions to the application of science and technology to development; to provide the opportunity for and to assist in the exchange of expertise and scientific research among the developing countries at the regional and the international levels; to concentrate on the study of the unused natural resources of the developing countries, such as solar energy and the like.

Number of Students (Male and Female) at Aden University for the Academic Year 1976-1977

Colleges	No. of Students		
	Males	Females	Total
Education (Aden)	603	429	1032
Teacher Training School (Al-Mukalla)	171	18	189
Economics	332	110	442
Medicine	89	30	120
Nasser College of Agricultural Sciences	95	19	114
Higher Technical Institute	128	19	147
Total	1418	626	2044

Number of Teachers on
Faculty of Aden University, 1976-1977

Rank: / Colleges	Professors	Asst.Professors	Lecturers	Instructors	Total
Agricultural Sciences	4	7	4	9	24
Education	3	14	35	39	91
Economics and Administration	-	-	12	10	22
Higher Technical Institute	3	7	11	5	26
Medicine	-	3	6	6	15
Total	10	31	68	69	178

Centres of Technical & Vocational Education (to 1966)

No.	Name of Centre	Capacity No. of Students	Entrance Qualifications Diploma	Language of Instruction	No. of Instructors	Courses of Study	Duration of Program	Notes
1	.Technical Institute .Technical High School	660	Prep.	English	31	.Electro-mechanical .Construction/ Geology	3 yrs. " "	Institute and High School share teachers
2	.Naser Agricultural College .Agricultural High School	450	Prep.	Arabic	12	General Agriculture	" "	
3	Commercial High School	300	Prep.	Arabic	13	General Commerce	" "	
4.	Medical Assistants Training Institute	600	Prep.	Arabic and English	19 Yemeni teachers 30 lecturers 8 World Health Organization	Professional nurse Practical nurse Midwife/nurse Pharmacy technician Ass't.Pharm. Public Health Inspector Ass't.Health Insp. X-Ray technician Ass't.Lab.technician Medical Ass't.	" " 1 yr. 18 mths. 3 yrs. 18 mths. 3 yrs. 18 mths. " " " " 3 yrs.	
5.	Fisheries Training Institute	160	Prep.	Russian and English for Students Arabic for Fishermen	14 plus several lecturers	Maritime navigation Marine engineering Fish processing Equipment of Fish Industries Fish processing techn. Course for fishermen	4 yrs. " " " " " " 2 yrs. 10 mnths	
6.	Co-operative Institute	70	General Secondary for Co-operative Development Course Prep. plus 3 yrs. experience in co-operative field	German and Arabic	9	General Administration Co-operative Counseling Co-operative Development Accounting Administration Statistics & Planning Economy, Business and Wages*	5 mths. " " 1 academic yr. 5 mths. " " 5 mths.	

* Translator's Note: Text Unclear.

No.	Name of Centre	Capacity No. of Students	Entrance Qualifications Diploma	Language of Instruction	No. of Instructors	Courses of Study	Duration of Program	Notes
7.	Training Centre	60	Prep.	Arabic Translation from Russian and German	9	Veterinary medicine & animal treatment	One yr.	
						Animal husbandry	" "	
						Bacteria	" "	
						Viruses	" "	
						Analysis and grading of dairy products	" "	
						Poultry farming	" "	
8.	Agricultural Counseling Training Centre	50	Literacy Elem.	Arabic	Specialists of the Research Centre perform the training	Wheat crop	six weeks	
						Horticulture	" "	
						Field crops	" "	
						Agricultural statistics	" "	
						Agricultural counseling	" "	
						Community Development	" "	
9.	Irrigation Engineering Training Institute	40	General secondary Preparatory and higher or lower depending on course	Arabic English	7	Irrigation Engineering	two yrs.	
						Works Inspector	" "	
						Surveying	" "	
						Design	" "	
						Water and soil analysis	six months	
						Meteorology	three "	

10.	Vocational Training Institute	120	3rd Prep.	Arabic		Electricity General Mechanics Farm machinery mechanics Auto mechanics	two yrs. " " " " " "
11	Technical Institute for Part-time Vocational Training	240	Prep.	English	Faculty teaching regular courses	General Mechanics Fitting & lathe work Electrical installations	4 yrs. " " "

Investments of Development Programme for 1974-1977

Sector	Revised Plan				Actual Implementation			
	Apr./Mar.74/75	Apr./Dec.75	Jan./Dec.76	Jan./Dec.77	Apr./Mar.74/75	Apr./Dec.75	Jan./Dec.76	Jan./Dec.77
Industry	6.13	5.11	4.67	6.36	5.38	3.50	4.59	4.19
Agriculture and Fishing	12.26	13.06	16.30	23.95	8.01	7.12	16.30	14.3
Transport and Communications	6.38	6.60	10.63	21.82	4.67	4.08	10.37	15.4
Housing and Local Administration	1.14	2.66	2.33	5.63	0.63	1.34	1.68	3.4
Education	2.34	5.28	5.14	8.52	1.09#	1.65	2.41	4.1
Petroleum and Minerals	1.47	1.02	4.80	6.85	0.31	0.78	2.22	5.7
Health	0.73	0.69	0.61	2.46	0.38	0.28	0.32	0.1
Other Services	0.31	0.73	1.63	4.54	0.15	0.36	1.27	2.80

Translator's Note: Figures unclear.

Domestic Income, National Income and Disposable National Income 1973-1976

In Thousands Y.D.

Item	1973	1974	1975	1976
Domestic Income	70569	81366	82329	104597
Net compensation of employees, property and entrepreneurial income from abroad	8047	6100	18232	33194
Net indirect taxes	8687	10401	10703	17405
National Income	87303	97867	111264	155196
Net transfers from abroad	200	300	3500	16000
Disposable National Income	87503	98167	114764	171196
Final Consumption of Government	22014	25479	31356	36904
Private Consumption	75377	79379	85309	121510
Savings	(983)	(6691)	(1901)	(12782)
Allocation of disposable National Income	87503	98167	114764	171196

Estimated Distribution of Population of the Republic
by Age-group, Year and Sex

Category	Year		1973		1974		1975		1976		1977		1978	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
0 - 14	50.44	48.31	397000	388000	407612	388605	418618	409368	429920	440421	441529	431772	453450	443430
15 - 64	46.51	47.55	366001	382000	375853	392335	386001	402928	396423	413807	407127	824980	418119	436454
65 and over	3.05	4.14	24017	33258	34647	34159	25313	35081	25996	36029	26698	37001	27419	38000
	100.000	100.000												

* Translator's Note: Figures unclear

Development of Household Share of National Income

Year	(1) Size of Population (in thousands)	(2) Rate of Population Growth (%)	(3) No. of Households (in thousands)	(4) National Income (in thousands)	(5) Annual rate of growth of National Income (%)	(6) Per Capita National Income 4/1	(7) Rate of growth of per capita National Income (%)	(8) Per Household National Income in Y.D. 4/3	(9) Rate of growth of per household National Income (%)
1973	1.590	-	286	78.616	-	49.44	-	274.88	-
1974	1.639	103.08	293	87.466	111.25	53.36	107.92	298.51	108.59
1975	1.690	103.13	303	100.561	114.97	59.50	111.50	331.88	111.17
1976	1.742	103.07	314	137.791	137.02	79.09	132.92	438.82	132.22

National Accounts Department.

Development of Agricultural Production

Commodity	1973			1974			1975			1976		
	Quantity in tons	Producer's price	Value in Y.D.	Quantity in tons	Producer's price	Value in Y.D.	Quantity in tons	Producer's price	Value in Y.D.	Quantity in tons	Producer's price	Value in Y.D.
Cotton	13.150	73.5	967.113	10.327	77.3	798.277	9.007	81.3	811.943	8.000	84.4	175.200
Sesame	3.400	113.0	384.200	1.200	125	150.000	2.000	130	260.000	2.000	135	370.000
Coffee	810	435	352.350	810	440	356.400	810	440	356.400	810	460	372.600
Tobacco	1.350	265	357.750	1.200	27	330.000	1.200	290	348.000	1.200	300	360.000
Wheat	12.500	67.0	837.500	9.000	70	630.000	10.000	75,0	.....	10.000*	75.0	750.000*
Other grains	69.400	70.0	485.000	47.200	70.0	3.304.000	25.000	70.0	1.750.000	-	70.0	-
Vegetables	18.295	40	731.800	10.573	46	486.358	18.404	40	736.160	20.654	40	920.160*
Fruits	27.352	24	656.448	14.294	22	314.468	18.553	22.2	411.876	20.221	22	444.862
Dates	20.000	60.0	20.200.000	20.000	75.0	1.500.000	20.000	80.0	1.600.000	15.000	90.0	1.350.000

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* Translator's Note: Figures unclear.

Fresh Fish Production (1971-76)

Year	Quantity in Metric Tons
1971	11732
1972	123492
1973	133402
1974	143259
1975	143277
1976	157399

Quantity of Exports of Frozen Fish Products

Year	Quantity in Metric Tons	Value in Dollars
1972	1349	1,907,549
1973	2298	3,271,254
1974	4293	4,844,210
1975	6420	4,942,409
1976	7878	12,462,161

Statistics, 1976

Health

Doctors	:	194
Pharmacists	:	59
Nurses	:	1114
Number of Beds	:	2073

Derived Statistics

One doctor for every	8983	persons
One pharmacist for every	29539	persons
One nurse for every	1564	persons
One doctor for every	11	beds

Cost of Living Index for the Capital, Aden,
1970-1976 (Base year: 1969 = 100)

Item	1976	1975	1974	1973	1972	1971	1970
General Index No.	194	187	197	135	116	111	105
Foodstuffs	201	196	182	142	119	114	106
Meats, Fish & Eggs	169	167	154	118	108	110	103
(a) Meats	214	213	191	126	110	72	109
(b) Fish	82	82	82	102	102	129	108
(c) Eggs	133	173	173	136	119	108	105
Beverages & Soft Drinks	156	146	109	117	114	111	100
Grains & Grain Products	237	232	226	190	117	105	105
Vegetables	116	112	118	298	113	117	113
Dry Legumes	198	198	184	110	182	116	100
Fresh Fruits	793	79	86	151	140	121	100
Canned Fruits	118	116	110	112	104*	103	107
Fats	303	470	265	159	130	144	117
Dairy Products	182	182	172	135	127	114	104
Spices	200	152	127	105	94	114	112
Sugar & Sweets	366	366	291	173	155	129	117
(a) Sugar	400	400	325	197	180*	137	120
(b) Sweets	269	269	192	135	115	150	113
Other Foods	250	237	202	142	120	106	102

* Translator's Note: Figures unclear.

Item	1976	1975	1974	1973	1972	1971	1970
Fuels, Water & Lighting	207	202	156	111	108	102	100
Fuels	200	220	172	130	121	106	101
Water	100	100	100	100	100	100	100
Lighting	288	288	178	100	100	100	100
Rents	75	75	75	75	90	100	100
Clothing	349	309	236	143	135	150 *	109
Cloths	405	366	270	140	139	110	113
Ready-made Clothes	286	234	190	161	136	111 *	102
Footware	240	201	184	150	126	111	101
Tailored Clothes	158	145	126	107	107	100	100
Household Goods	184	177	151	134	118	111	104
Household Appliances	189	177	149	129	111	102	104
Detergents	180	176	153	139	125	119	104
Oat, Tobacco & Alcoholic Beverages	201	201	175	246	125	116	106
Oat	163	198	172	158	120	103	106
Beer	189	196	179	133	129	122	108
Cigarettes	252*	205	177	134	130	130	105
Other Expenditures	125	127	123	111	105	102	101
Medical & Personal Hygiene Expenditures	172	169	144	117	107	105	103

* Translator's Note: Figures Unclear.

Item	1976	1975	1974	1973	1972	1971	1970
Medical Expenditures	113	113	113	115	104	103	104
Personal Hygiene Materials	197	192	157	173	109	105	102
Transport and Communications	106	120	115	105	105	102	100
Other Expenditures	114	108	115	111	103	102	101